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ABSTRACT

Responses on both the state and trait scales of the State-Trait Anxiety (STAI) Inventory were examined under two conditions. The first condition presented a simulated real-life situation containing competitive and evaluative cues without directly suggesting faking and asked subjects to complete the STAI. After an intervening task, the STAI was readministered under standard instructions. The hypothesis that subjects would respond consistently on the A-trait scale, while demonstrating increased levels of A-state was confirmed. Results were interpreted as consistent with the distinction between trait anxiety as a relatively permanent attribute of the individual and state anxiety as a transitory characteristic which fluctuates with the environment. However, the results conflict with traditional notions of social desirability response bias, which imply that "faking good" should lead to consistent changes on both scales. There is little doubt that "faking good" can lead to distortions of scores on affective measures. However, subjects do not necessarily actually "fake good" in situations where they have no definite instructions to fake. (Author/RC)

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Induced Response Bias on the State-Trait Anxiety Inventory

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Abstract

Responses on both the state and trait scales of the State-Trait Anxiety (STAI) Inventory were examined under two conditions. The first condition presented a simulated real-life situation containing competitive and evaluative cues without directly suggesting faking and asked subjects to complete the STAI. After an intervening task, the STAI was re-administered under standard instructions. The hypothesis that Ss would respond consistently on the A-trait scale, while demonstrating increased levels of A-state was confirmed. Results were interpreted as consistent with the distinction between trait anxiety as a relatively permanent attribute of the individual and state anxiety as a transitory characteristic which fluxuates with the environment. However, the results conflict with traditional notions of social desirability response bias, which imply that "faking good" should lead to consistent changes on both scales. There is little doubt that "faking good" can lead to distortions of scores on affective measure. However, Ss do not necessarily actually "fake good" in situations where they have no definite instructions to fake.

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Introduction

The State-Trait Anxiety Inventory (STAI) has recently emerged as a useful tool in conceptualizing anxiety phenomena as two related constructs--state and trait anxiety (Spielberger, Gorsuch, & Lushene, 1970). State anxiety (A-state) refers to a transitory emotional condition that is characterized by subjective feelings of tension and apprehension, while trait anxiety (A-trait) describes relatively stable individual differences in anxiety proneness. Levitt (1967) has attested to the theoretical and methodological soundness of the STAI when compared to other instruments used to assess anxiety.

Research on the reliability of the STAI generally reveals high test-retest stability of the A-trait scale even under different testing conditions (Allen, 1970; Newmark, 1972; Spielberger, et al., 1970) as would be predicted by the hypothesis of anxiety as an enduring personality trait. However, A-state stability coefficients tend to be low, as would be expected for a measure that is influenced by situational factors. Under conditions of stress such as that created by final examinations (Sachs & Diesenhaus, 1969), or performance on difficult tasks (Spielberger, O'Neil, & Hansen, 1972), A-state tends to increase from levels reported under "normal" conditions. Moreover, induced anxiety sets established through experimenter-provided instructions raise levels of A-state (Allen, 1970; Bucky, Spielberger & Bale, 1972; Spielberger, et al., 1970).

Reliability studies of the STAI have frequently emphasized the use of role-playing conditions in which Ss were instructed to respond as if in an environment different from that in which they are actually completing the scales. For example, Ss have been asked to respond as if they were employees

who wanted to make it appear that they were in extremely stressful jobs (Smith, 1972). The differences obtained in A-state scores under such conditions may occur because A-state scores reflect the different levels of stress phenomenologically experienced by Ss under induced role-playing conditions. Others have preferred to regard changes in A-state as indices of change in the Ss' perceived need to "fake good" (Edwards, 1957). Allen (1970) has concluded that the A-state scale is one of many anxiety measures that is susceptible to faking.

The present writers feel that both explanations are viable, but that responses will be determined by the nature of the instructions provided by E. Directions to Ss which make it apparent that each S has something to gain from faking good should increase the social desirability response bias operating in the situation and should result in changes on both A-state and A-trait scales. Such a finding is obtained in Bucky, et al. (1972) where significant and simultaneous decreases in A-state and A-trait were attributed to a defensive tendency to "look good" exhibited among flight students. These Ss had been asked to respond as they would after having just engaged in a critical component of the career for which they were training (loading on an aircraft carrier). However, instructions placing Ss in a simulated stressful condition in which they are asked to report their subjective feelings accurately, and from which direct threat is removed, should yield an alternate pattern of responses. Under such a condition, one would expect changes in A-state responses to occur, as a function of the subjective feelings induced in the role-playing situation. But, A-trait responses, which theoretically reflect the relatively chronic, generalized view one holds of his level of anxiety, should remain stable.

This study attempted to present to S a real-life situation which contained competitive and evaluative cues, while it avoided a direct suggestion to fake. It was hypothesized that Ss would respond consistently on the A-trait scales, and with increased A-state under the role-playing condition.

Method

The STAI is a self-report inventory that consists of a 20 statement A-trait scale that requires S to describe how he generally feels and a 20 statement A-state scale which requires S to indicate how he feels "at this moment." Sixty male and 131 female juniors and seniors enrolled in an undergraduate psychology course at the University of Kansas served as Ss.

The STAI was initially presented to Ss with the following role-playing instructions: "We are asking you to put yourself in the position of someone who is interviewing for the job 'of his dreams' -- a position that you would consider most ideal for your personal goals. You are aware that there are at least fifty other applicants for this position, all highly qualified and motivated to obtain the job. As you prepare for this interview, respond to the following questionnaire in terms of your feelings and ideas about the interview and the position. Before we distribute this questionnaire, take a minute to think about what a person in such a situation would think and feel."

After completion of both scales under the role-playing condition, Ss were given an interpolated task in which they were asked to respond to a political poll. At its conclusion, they were readministered the STAI with

the following instructions: "We would now like you to complete the questionnaire that you filled out previously; this time we would like you to fill it out as you would under ordinary circumstances. Complete it just as the instructions on each form tell you to do." Procedures designed to insure anonymity of individual responses were followed in all cases.

Results

Since the norms of the STAI indicate sex differences in performance on the sub-scales, data for each group were analyzed separately. Table 1 indicates that when the STAI was administered under the simulation directions, the raw-score means on the A-State scale were 6.60 points higher for the males and 9.31 points higher for the females than the means obtained under standard directions. Both of these differences were significant at the .01 level. On the other hand the differences between raw score means of the A-Trait under the simulation and standard directions were only -0.86 for males and 0.25 for females. Neither of these differences was significant at the .01 level.

Table 2 shows the correlations between the subtests under the simulation and standard conditions as well as the alpha reliability coefficient for each test (Stanley, 1971). The alpha reliability coefficients ranged from .89 to .94 indicating relatively homogeneous tests. The correlations between subtests revealed that the A-Trait scales administered under different directions were correlated .77 for males and .65 for females, while the A-State scales administered under different directions were correlated .52 and .35 for males and females respectively. As predicted, the A-Trait scale displayed more stability than the A-State scale. The correlation between

Table 1

State and Trait Sub-Test

STAI Raw Score Means, Standard Deviations, Mean Differences, and Student t Statistics for Males and Females Under Simulated and Standard Directions

Males (N=59)

	Mean	Standard Deviation	Mean Difference	t
A-State				
Simulated	39.41	11.22	6.60	4.66**
Standard	32.81	10.99		
A-Trait				
Simulated	36.07	9.65	-0.86	-0.96
Standard	36.93	10.59		

Females (N=126)

	Mean	Standard Deviation	Mean Difference	t
A-State				
Simulated	38.83	12.77	9.31	8.41**
Standard	29.52	7.72		
A-Trait				
Simulated	33.79	7.97	0.25	0.41
Standard	33.54	8.02		

**p < .01

Table 2

Alpha Reliability Coefficients and Correlations Between Sub-Tests of the STAI Under Simulation (Sim) and Standard (Std) Directions for Males and Females*

Males (N=59)

Subtest and Directions	Alpha	A-State (Sim)	A-State (Std)	A-Trait (Sim)	A-Trait (Std)
A-State (Sim)	.92	1.00	.52	.74	.58
A-State (Std)	.94	.52	1.00	.52	.77
A-Trait (Sim)	.92	.74	.52	1.00	.77
A-Trait (Std)	.94	.58	.77	.77	1.00

Females (N=126)

Subtest and Directions	Alpha	A-State (Sim)	A-State (Std)	A-Trait (Sim)	A-Trait (Std)
A-State (Sim)	.94	1.00	.35	.66	.43
A-State (Std)	.90	.35	1.00	.35	.51
A-Trait (Sim)	.89	.66	.35	1.00	.65
A-Trait (Std)	.89	.43	.51	.65	1.00

*All correlations are significant at the .01 level.

the A-State and A-Trait Scales administered under simulation directions were .74 for males and .66 for females, while the correlations between the A-State and A-Trait Scales administered under standard directions were .77 for males and .51 for females

The mean response for each item was computed, and t-tests at the .01 level of significance were carried out to compare the item means under simulation and standard directions. For female Ss, each of the 20 items on the A-State scale except items 4 ("regretful") and 8 ("rested") showed a significant difference in the direction of higher anxiety under the simulation directions. For male subjects, 9 of the 20 items on the A-State scale showed significant differences in the directions of higher anxiety under the simulation directions. The nine items were numbers 1, 3, 5, 9, 10, 13, 16, 19, and 20. The smaller number of significant differences for the males than females may be explained in part by the smaller sample of males, although the obtained mean differences tended to be smaller as well. For the A-Trait scale, none of the items showed a significant difference in means for the males, and only item 19 ("I am a steady person") showed a significant change in means for the females. In the case of item 19, a higher mean was obtained under standard directions.

Discussion

The hypothesis that changes in scores on anxiety inventories such as the STAI are effected by response sets generated by instructions, has received support from this study. The degree to which social desirability or faking good brings about changes in Ss' responses depends on the specific directions provided by the experimenter. When explicit coaching to fake occurs or when the obvious use of the information can possibly be

detrimental to the individual (as in a screening technique in an employment situation), Ss may indeed fake good.

However, when a simulated situation that contains implicit evaluative and stress cues is presented, as in the present study, Ss have been shown to respond in a mode that may be appropriately described as "honest". A pattern of increase in A-state scores presumably reflecting increased anxiety under role-playing conditions and a stable pattern of A-trait scores across both conditions of administration are consistent with predictions derived from the theory underlying the distinction between A-state and A-trait, yet in conflict with the behavior predicted by the social desirability hypothesis. The tendency to give a socially desirable self-description should result in Ss' faking consistently on both scales, since a calm personality would be at least as socially desirable as appearing calm at the moment (cf. Bucky, et al., 1971).

Patterns of test-retest correlations on both A-trait and A-state scales reflect those found in other research (Spielberger et al., 1970), with A-trait responses showing stronger stability across treatment. Responses for male subjects on A-state scales showed greater stability than those for females; also, increases in A-state for females were greater than for males.

Furthermore, correlations between A-state and A-trait tended to remain stable and substantial for males; correlations for females were lower and changed moderately in a higher direction under simulated condition.

These findings suggest that female subjects are more emotionally responsive, or perhaps more likely, that due to cultural bias toward admitting emotionality, women are more open to reporting their responses.

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